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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/780,605

02/19/2004

Shiann-Ming Liou

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04/19/2005

MARVELL SEMICONDUCTOR, INC.  
INTELLECTUAL PROPERTY DEPARTMENT  
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EXAMINER

THAI, LUAN C

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/780,605

Applicant(s)

LIOU, SHIANN-MING

Examiner

Luan Thai

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This Office action is responsive to the Remarks filed April 05, 2005.

Claims 1-9 are pending in this application.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Schoenfeld (6,348,400 of record) as set forth in the previous Office Action mailed March 11, 2005 and now repeated.

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1-2, 6 and 8-9, Schoenfeld (see specifically figure 5) disclose a method of distributing power in a semiconductor die comprising: providing at least a pairs of bond pads (e.g., which are connected by bonding wires 34 or 36) to the semiconductor die (20); providing an input/output bond pad (e.g., one of bond pads 26/30 at the perimeter of the die 20 that are not connected by bond wires 34 or 36), the input/output bond pad to receive an input/output bond wire operable for electrically

connecting to a package (Col. 4, lines 41+); connecting a single corresponding bond wire (34 or 36) between each of the at least one pair of bond pads such that each bond pad of each of the at least one pair of bond pads has only one bond wire end connected thereto, and locating the second bond pad (26) of the pair of bond pads along a periphery and in an internal portion of the semiconductor die (20). Although *Schoenfeld* does not explicitly disclose “an input/output bond pad to receive an input/output bond wire” as applicant claimed, such bond pad and bond wire are taken to be inherent in Schoenfeld’s device structure since: a) *Schoenfeld* does teach the bond pads formed on the semiconductor die (22) being electrically connected to lead fingers (40) by bond wire (see figures 6A-6B); b) the lead fingers (40) are considered as external terminals of the device for electrical connecting the device to other circuit or package; and c) the bond pads (26) are used for making contact with and providing an external contact for internal circuitry (Col. 4, lines 6+). Thus, it is clear that some of bond pads in Schoenfeld’s device must be “an input/output bond pad” of the semiconductor die for the semiconductor die to function as intended, and the bond wire, which is electrically connected between such input/output bond pad and the lead finger (40), is considered as an input/output bond wire.

Regarding claims 3-4, Schoenfeld further discloses the first bond wires (34/36) made of a metallic material selected from the group consisting of gold and aluminum (Col. 4, lines 37+), and bonded to the pair of bond pads using ball bonds or stitch bonds on ball (Col. 4, lines 30+).

Regarding claim 7, although Schoenfeld does not explicitly disclose the first bond wire being selected from the group consisting of power interconnect, ground interconnect, and signal interconnect, this feature is taken to be inherent in Schoenfeld integrated circuit, since the first bond wire being electrically connected to the bond pads is disclosed and it would be that the bond wire must be one of power interconnect, ground interconnect, or signal interconnect, for the integrated circuit to function as intended.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoenfeld (6,348,400 of record) in view of Manning et al. (6,169,331 of record) as set forth in the previous Office Action mailed March 11, 2005 and now repeated.

Regarding claim 5, Schoenfeld discloses the claimed invention as detailed above except for a trace in the semiconductor die connected between the pair of bond pads.

Manning et al. while related to a similar integrated circuit die design teach (see specifically figure 3A) a pair of bond pads 121a-121b are connected together not only by bond wire 150b (outside the semiconductor die 120) but also by the trace 153 (inside the semiconductor die 120) in order to reduce electrical resistance between the two bond pads 121a-121b (Col. 4, lines 59+). It would have been obvious to one of ordinary skill in

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the art at the time the invention was made to modify Schoenfeld's method by forming an additional trace in the semiconductor die connected between the pair of bond pads, as taught by Manning et al., in order to reduce electrical resistance between the two bond pads, and such modification is held to be within the ordinary designing ability expected of a person skilled in the art.

### ***Response to Arguments***

5. Upon carefully review the references and Applicant Response filed on April 05, 2005, the Examiner determines that the arguments in the Applicant Response are not persuasive.

Applicant argues, at the fourth paragraph of page 2 of the Remarks, that *Schoenfeld does not show, teach or suggest the input/output bond pad to receive an input/output bond wire operable for electrically connecting to a package.*

In response, the Examiner points out that *Schoenfeld* teach the semiconductor die (22) is electrically connected to other package or other circuit via the bond pads (26 for example), the bond wires, and the lead fingers (40) (see figures 6A-6B). Thus, the lead fingers (40) are considered as external terminals of the device. Although *Schoenfeld* does not explicitly disclose one of bond pads formed on the die (22) to be "an input/output bond pad to receive an input/output bond wire" as applicant claimed, such bond pad and bond wire are taken to be inherent in Schoenfeld's device structure since: a) *Schoenfeld* does teach the bond pads formed on the semiconductor die (22) being electrically connected to lead fingers (40) by bond wire (see figures 6A-6B); b) the lead fingers (40) are considered as external terminals of the device for electrical connecting the device to other circuit or package; and c) the bond pads (26) are used for making contact with and providing an external contact for internal circuitry (Col. 4, lines 6+).

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Thus, it is clear that some of bond pads in Schoenfeld's device must be "*an input/output bond pad*" of the semiconductor die for the semiconductor die to function as intended, and the bond wire, which is electrically connected between such input/output bond pad and the lead finger (40), is considered as an input/output bond wire.

### ***Conclusion***

8. Applicant's amendment filed on April 05, 2005 has been fully considered but they are not persuasive. Therefore, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

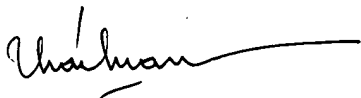
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Luan Thai', with a long horizontal flourish extending to the right.

**Luan Thai**

Primary Examiner

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April 16, 2005